

Reply to Office Action of May 16, 2008

**AMENDMENTS TO THE DRAWINGS**

The attached sheets of drawings includes FIG. 1, FIG. 2, FIG. 3, FIG. 4, FIG. 5, FIG. 6, FIG. 7.

Please note the following changes to the drawings:

The label "Prior Art" has been placed on FIG. 1 and FIG. 2

FIG. 6 has been amended to include an additional embodiment as claimed.

Attachment: 6 Replacement sheets

## REMARKS

Reconsideration of the present application is respectfully requested.

### **Summary of Office Action**

Parts of the specification were objected to under 35 U.S.C § 112 first paragraph as containing certain informalities.

The drawings were objected to under 37 CFR § 1.83(a) based as containing informalities.

Claims 7-10 were rejected under 35 U.S.C § 112 second paragraph as being indefinite.

Claims 1-2, 5-6, 11, 16-17, and 22-23 were rejected under 35 U.S.C § 102(b) as being anticipated by the IEEE paper of Mansour ("Mansour").

Claims 1-2, 5-7, and 11-12 were rejected under 35 U.S.C § 102(b) as being anticipated by Japan Patent No. 40529914 A of Setsune et al ("Setsune").

Claims 1-4, 5-6, and 10-11 were rejected under 35 U.S.C § 102(b) as being anticipated by U.S. Patent No. 6,496,710 of Suzuki ("Suzuki").

Claims 13-15, 18-21, 24-27 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including limitations of the base claim.

**Summary of Amendments**

In this amendment, claims 5, 11, and 22 have been amended. Claims 1-4, 6-10, 12-15, 17-21, and 23-27 have been canceled. Claims 28-36 have been newly added. The specification has been amended. A new set of diagrams (for Figs. 1 – 5) have been added and these new diagrams replace the old diagrams. No new matter has been added.

**35 U.S.C. § 112 Objections:**

The 112 objections raised by the examiner have been considered and notice taken thereof. The specification (as amended above) captures changes in response to these rejections. Applicants therefore request that the 112 rejections be withdrawn.

**Discussion of 37 CFR § 1.83(a) Objection: AMENDMENTS TO THE DRAWINGS**

The various objections to the drawings under 37 CFR § 1.83(a) have been considered and taken notice thereof. A new set of diagrams submitted with this amendment substantially reflect the required changes.

**Discussion of 35 U.S.C. § 112 (Second Paragraph) Objection to Claims**

The Examiner objected to claims 7-11, and 12-27 under 35 U.S.C. § 112 for various reasons as provided in the Office Action. However, as indicated above, only claims 11, 16, and 22 remain in the present application (as amended). Therefore, a discussion of the objections to the canceled claims is moot.

As for claims 11, 16, and 22, the suggested corrections have been included in the claims (as amended).

**Discussion of 35 U.S.C. § 102(b) Rejections**

**Amended Independent Claim 5**

In one embodiment, the present invention relates to a superconductive microstrip filter, which contains a plurality of U-type superconductive microstrip resonators. This U-type superconductive microstrip resonator, according to one embodiment, is built such that the microstrip resonator has a U-type structure, formed by folding a superconductive microstrip line. The length of this superconductive microstrip line is half of the wavelength of the center frequency of the superconductive microstrip filter.

The U-type superconductive microstrip resonators have two ends, an open end and a closed end forming the U-shape of the structure. The two arms of the structure are parallel, and for improved performance, the structure is built such that the two arms (or sides) of the U-type superconductive microstrip resonator are unequal in length. Therefore, each of the U-type superconductive microstrip resonators has one long arm and one short arm.

A plurality of these U-type superconductive microstrip resonators are arranged within the superconductive microstrip filter such that all the U-type superconductive microstrip resonators are parallel to each other. Additionally, every arm (or side) of the plurality of U-type superconductive microstrip resonators is parallel to its adjacent arm, and further arranged such that each U-type superconductive microstrip resonators is axisymmetric with its neighboring U-type superconductive microstrip resonator.

In some embodiments of the present invention, the longer side of the U-type superconductive microstrip resonator is closer to the symmetric axis, and in other embodiments the shorter side of the U-type superconductive microstrip resonator is closer to the symmetric axis.

Accordingly, independent claim 5 has been amended to substantially include the above features of the present invention, and recites in relevant parts as follows: "said superconductive microstrip resonator has a U-type structure formed by a superconductive microstrip line," **"two sides of ... said U-type structure are different from each other in length and the two sides are parallel to each other,"** "said plurality of U-type superconductive microstrip resonators are arranged in parallel with each other, any two neighboring U-type superconductive microstrip resonators ... are arranged **asixsymmetrically and in parallel with each other**" (emphasis added).

Independent claim 1 has been canceled and the relevant provisions of claim 1 have been included in claim 5, and therefore the discussion of the § 102 rejections will be focused on the independent claim 5. The newly added claims (claims 28-36) substantially reflect the limitations discussed above in relation to the prior art. Therefore, the discussion of independent claim 5 pertains to the newly added claims as well.

### **Cited Prior Art Differentiated**

**Mansour** does not teach or suggest all of the limitations discussed above. Mansour teaches several approaches to realizing multiplexed solutions to superconductive materials for microwave applications (see Introduction, para. 1). In one of the examples provided here, Mansour discusses using a hairpin coupled filter (Fig. 5). In this example, Mansour analyzes the performance of a three-pole hairpin filter, where the microstrip resonator is in the form of a hair-pin (Fig. 5).

Even if it is assumed *arguendo* that the Mansour hair-pin shape of the microstrip resonator is the same as the U-type shape provided in the present invention, Mansour does not teach any of the other limitations of the present invention. For example, **Mansour does not teach or even suggest at all that the two arms of the hair-pin structure should be of unequal length.** For at least this reason, Mansour is clearly distinguishable from the present invention.

**Setsune** also does not teach the limitations of the present invention. Setsune discloses a high frequency resonator and a filter comprising a plurality of open conductive loops, which also briefly provides the use of a U-shape configuration. It also provides some teaching on using a plurality of resonators that are arranged in a parallel fashion and axisymmetric about an imaginary vertically oriented line. Again, just as in

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Mansour, even if we assumed arguendo that this arrangement is similar to the arrangement in the present invention, Setsune **does not indicate or suggest at all that the resonator is built such that it has a short arm and a long arm** (i.e., that both arms are unequal in length).

Tsuzuki also does not teach or suggest the limitations discussed above in relation to some embodiments of the present invention. Tsuzuki discloses a filter for filtering high frequency electric signals comprising a plurality of resonators. Each of the resonators is built in the form of a U-shape. (See abstract and Fig. 1). Tsuzuki provides that the "linear parts of each resonator have different lengths from each other" (Abstract). However, Tsuzuki also teaches that each of the resonators is arranged such that the "resonators [are] formed circularly to surround the center of the substrate).

Although Tsuzuki does teach the use of dissimilar lengths on the linear parts of the U-shape, Tsuzuki does not disclose or teach other aspects of the present invention. For example, the present invention teaches that the resonators are arranged such that the arms of the resonators are parallel to each other in the arrangement and that they are axisymmetric to each other. In stark contrast, **Tsuzuki does not teach at all that either the arms of the resonators or the resonators themselves are parallel to each other** (instead, they are arranged radially in Tsuzuki). Also, **Tsuzuki does not disclose at all that the resonators are arranged axisymmetric and parallel to each other.**

For at least the above reasons, therefore, independent claim 5 is thought to be patentable over the cited art. In addition, claims 11, 16 and 22 depend on claim 6. These dependent claims derive their patentability from claim 6, and also recite the patentable features claim 6. The new claims 28-36 also recite the patentable features

discussed above. Therefore, these claims are also thought to be patentable over the cited art.

Therefore, Applicants respectfully request the Examiner to withdraw all the § 102 rejections.

### **Dependent Claims**

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.



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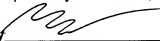
**CONCLUSION**

For the foregoing reasons, the present application is believed to be in condition for allowance, and such action is earnestly requested.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-2207, under Order No. 58578-8001.US01 from which the undersigned is authorized to draw.

Dated: *Sep 5 2008*

Respectfully submitted,

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